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Power management controller for hybrid electric vehicle using fuzzy logic

(Article)

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Abstract

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This paper presenting a study on hybrid electric vehicle (HEV), using backward facing approach simulation or QSS approach and fuzzy logic power management controller for HEV. The software being used for modelling of HEV and fuzzy logic power management controller is MATLAB/Simulink. A comparison study was completed to investigate fuzzy logic power management controller capability compared to optimal ideal controller optimized by dynamic programming. It was concluded that fuzzy logic controller shows excellent performance as HEV final battery SOC lies within 2.8% margin of that dynamic programming. Then, a comparison study was completed after addition of supercapacitor set to this HEV against battery only supply. After fuzzy logic PMC modified to include supercapacitors addition, it was observed that fuel economy improved by 54.34% from 57.6 mpg to 88.9 mpg, and total energy consumption reduced by 27.27%. © 2006-2015 Asian Research Publishing Network (ARPN).

Author keywords

EV HEV Hybrid electric vehicle Power management controller QSS Quasi-static simulation Supercapacitor

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